

اسئلة العيون العملي

اعداد وتنسيق :-

بشرى الشميري



1- Muscles of the eyes (origin, insertion and nerve supply) ?

1- Superior rectus (SR) :-

Origin :-

From tendinous ring on posterior aspect of orbit.

Insertion :-

Middle of the superior aspect of Anterior globe (Sclera).

Innervation :-

Oculomotor (III CN) (superior division).

Primary action :-

- elevation of the globe.
- Upward rotation.

2- Inferior rectus (IR) :-

Origin :-

From tendinous ring on the posterior aspect of orbit.

Insertion :-

Middle of the inferior aspect of Anterior globe (Sclera).

Innervation :-

Oculomotor (III CN) (inferior division).

Primary action :-

- depression of the globe.
- downward rotation.

3- Medial rectus (MR) :-

Origin :-

From tendinous ring on the posterior aspect of orbit.

Insertion :-

Middle of the superior aspect of Anterior globe(Sclera).

Innervation :-

Oculomotor (III CN) (inferior division).

Primary action :-

Medial rotation (adduction).

4- Lateral rectus (LR) :-

Origin :-

From tendinous ring on the posterior aspect of orbit.

Insertion :-

Middle of the superior aspect of Anterior globe (Sclera).

Innervation :-

Abduction (VI CN).

Primary action :-

Lateral rotation (abduction).

5- Superior oblique (SO) :-

Origin :-

From greater wing of the sphenoid bone.

(however, its functional origin is from the trochlea which acts like a pulley).

Insertion :-

Innervation :- ȡ Supero-lateral quadrant of the globe(Sclera).

Trochlear (IV CN).

Primary action :-

- Abduction.**
- Depression of globe.**
- Rotation of globe when adducted.**

6- Inferior oblique (IO) :-

Origin :-

From the periosteum of the maxilla.

Insertion :-

Infero-lateral quadrant of the globe (Sclera).

Innervation :-

Oculomotor (III CN) (inferior division).

Primary action :-

- Adduction.**
- Elevation of globe.**
- Rotation of globe when abducted.**

2- Layer of the eye from outer to inner ?

The Eye is consist of three coats :-

A- Outer "fibrous" coat :-

- Cornea
- Sclera.

B- Middle "vascular" coat :

- Iris.
- Ciliary body.
- Choroid.

C- inner "nervous" coat :-

- Retina.
- Macular.
- Fovea.

3- Layer of Cornea ?

Cornea is consist of 5 Layers from outer to inner :-

A- Epithelium :-

- Stratified Squamous non- keratinized epithelium.
- it consist of 3 cell types namely the basal columnar cells.
- it consist of Two or three Layers of wing cells and surface cells.
- it normally replaced within 7 days.

B- Bowman's membrane :-

- it's Made up of collagen fibers
- Clear structureless elastic membrane.
- Easily destroyed and not regenerates when damage.
- This is the result of formation of premanent Corneal opacity.

C- Substantia prupria (Stroma) :-

- Forms 90% of corneal thickness.
- Thick strong consist of keratocytes, regularly arranged collagen fibrills, ground substance.

1- Lamellae :-

- Collagenous fibers.
- Elastic fibers.

2- Cells :-

- Corpuscles.
- Leucocytes.

3- Lymph space :-

in between Lamellae.

D- Descemet's membrane :-

- Thin but strong homogenous.
- Elastic membrane.
- Resistant and Easily regeneration.

E- Endothelium :-

Single Layer of hexagonal flattened cells.

4- Muscle of ciliary body and its function ?

Has 3 muscles :-

1- Circular muscle :-

inner most attached in ciliary process.

2- Longitudinal muscle :-

Outer most attached in Spur to supra-choroidal lamina.

3- Oblique muscle :-

in between Circular and Longitudinal muscles.

Function :-

- 1- Circular fiber :- Accommodation.
- 2- Long fibers :- Draining of aqueous humor.

5- Definition of Glaucoma :-

Optic neuropathy in which there is increased in IOP, Which is high risk factor associated with optic disc change and visual field change.

6- Corneal Layers and blood supply and Congenital Corneal opacity ?

Corneal Layers :-

- 1- Epithelium.
- 2- Bowmans membrane.
- 3- Stroma.
- 4- Descemets membrane
- 5- Endothelium

Blood Supply of cornea :-

- From aqueous humor "diffusion".
- From limbal (peri-corneal capillaries.
- Diffusion from tear film.

Congenital cornea opacity :-

7- What is the buphthalmos? And Treatment ?

Definition :- increase in IOP with damage of the optic nerve due to Congenital anomalies in the angle (Congenital glaucoma).

Treatment :- is operative.

8- Layers of Retina and blood supply ?

Layers of Retina :-

○ **Outer-to-inner :-**

- 1- RPE – retinal pigment epithelium (and Bruch's membrane).
- 2- PRL – photoreceptor Layer.
- 3- OLL – outer limiting Layer.
- 4- ONL – outer nuclear Layer.
- 5- GCL – ganglion cell Layer.
- 6- NFL – nerve fibre Layer.
- 7- ILM – inner limiting membrane.

Blood supply of Retina :-

A- inner retina :-

is supplied by the central retinal artery, the branch of the ophthalmic artery that enters the optic nerve 4 mm posterior to the eye.

The central retinal artery has 4 main branches within the retina.

B- Outer choroid circulation :-

By diffuse choroidal circulation.

9- Definition of Congenital glaucoma and its Treatment ?

Definition :- its increase IOP with damage of optic nerve due to anomalies in angle.

Treatment :-

A- General treatment :-

- Calcium and Vitamins A and D.

B- Refractive surgery :-

1- Astigmatism :-

10-Definition glaucoma, types and Treatment ?

Definition :-

A diseases of progressive optic neuropathy with loss of retinal neurons & their axon (nerve fiber layer) resulting in blindness if left untreated.

Types of glaucoma :-

1- Congenital glaucoma

2- Acquired glaucoma :-

a- Primary glaucoma :-

- open angel glaucoma

- closed angel glaucoma

b- Secondary glaucoma.

Treatment :-

A- Medical therapy :-

- 1- Mitotics.
- 2- Beta blockers.
- 3- Carbonic anhydrase inhibitor.
- 4- Prostaglandine analogues.
- 5- Alpha-2 agonists.

B- Laser therapy :-

- 1- Yag peripheral iridectomy (YAG p.i).
- 2- Argon laser trabeculoplasty (ALT).

C- Surgical therapy :-

- 1- Goniotomy.
- 2- Trabeculotomy.
- 3- Trabeculectomy (trabeculectomy + antimetabolites).
- 4- Surgical peripheral iridectomy(P.i).
- 5- Cyclocryotherapy.

11- Definition Glaucoma types and Treatment ?

Definition:

it is triad of increased intraocular pressure above normal ,visual field change
(decreased peripheral vision) and optic disc cupping .

Or

it's pathological increased IOP Leading to optic nerve damage and Visual field defect.

Classification of glaucoma :

1- Congenital glaucoma (primary and secondary)

2- Acquired glaucoma

1- Primary :

a- closed angle "acute congestive "glaucoma

b- open angle "chronic glaucoma"

2- Secandary : (open and closed angle).

Clinical features :-

Symptoms:-

- 1- Photophobia.
- 2- Lacrimations.
- 3- Hazy Cornea.

(These Symptoms due to edema of cornea and blepharospasm.... Early symptoms).

- 4- Enlarged eyeball (bull's or ox eye) Corneal opacification (late).
- 5- if child (<3 mon.) Corneal clouding and tearing.

Signs :-

- 1- Deep A.C.
- 2- Optic Disc cupping +/- atrophy (i.e C/D ratio > 0.3).
- 3- increased IOP (21 mmHg).
- 4- Buphthalmos (horizontal Corneal diameter > 13mm, limbal ectasia, stretching of zonules can lead to lens subluxation).

5- Cornea :-

- Cloudy.
- Edematous.
- Haab striae ==> brackes in descement membrane.

6- iris :-

- becomes atrophic.
- Tremulous (iridodeneses).

7- Lens :-

- Cataract.
- Lens subluxation.

8- Sclera :-

- becomes thin.
- appear blue.

9- Angle of A.C. (gonioscope) :-

Meso-dermal membrane closing the angle (Barkan's membrane).

12- What is the membrane that affected in Congenital glaucoma ?

Abnormal meso-dermal membrane (due to Failure of complete separation of iris from cornea).

13- Relation between DM and glaucoma ?

DM increase IOP by :-

- Neovascular and hemorrhage leads to secondary glaucoma.

14- In mature senile cataract How can we diagnosis it ?

1- V.A :- H.M (hand movement).

2- A.C :- Normal.

15- Why Congenital cataract is dangerous ?

Because the child does not complain, So he develop amlopia.

16- What are the drugs that cause cataract ?

1- Steroid.

2- Miotics.

3- Gold.

4- Antipsychotics (e.g :- phenothiazines).

5- Amiodarone.

6- Busulfan (myteran).

7- Chlorpromazine.

8- Anticholinesterases (Neostigmine).

17- Definition of cataract and what are its types ?

Definition :- is lens opacity with loss of transpasncy.

Types :-

A- Class :- according to the Etiology :-

1- Congenital (developmental).

(At birth or during childhood).

2- Acquired :- (Occurs in post-natal life).

- a- Senile :- >50 years.
- b- Traumatic :- due to blunt or perforating ocular injury
- c- Complicated :- due to eye or general disease.
- d- Toxic :- due to certain drugs as Corticosteroids.
- e- Radiation :- due to infrared ray and Ultraviolet ray.

B- Class :- According to Age :-

- 1- Soft (before 25 years) :-
 - Occurs before 25 years.
 - Soft lens substance (soluble pro).
 - Rupture of lens capsule - - abs of lens matter.
- 2- Hard (after 25 years) :-
 - Occur after 25 years.
 - Hard nucleus (insol pre).
 - Rupture of lens capsule - - No abs of hard lens matter.

للإجابة بقیه

C- Class :- According to affected Layer :-

- 1- Subcapsular :-
 - Anterior.
 - Posterior.
- 2- Cortical :-
 - Anterior.
 - Posterior.
- 3- Nuclear.

18- What are the systemic diseases cause cataract ? And what is the Treatment of cataract ?

Complicated cataract due to general disease.

1- Diabetic cataract :-

Cause :-

Diabetes mellitus.

Clinically :-

- 1- Early Diabetic cataract : young Age and rapidly matures.
- 2- True Diabetic cataract (snow flake cataract) :-

- a- Occurs in young patient with uncontrolled Diabetes.
- b- Begins as milky white dots under the anterior and posterior capsule.

Treatment :-

1- Preoperative Control of Diabetes :-

To avoid postoperative complications.

2- Operation :-

a- in Young : extra-capsular cataract extraction.

b- in Old : Extra- or intra- capsular extraction.

3- Post-operative :-

a- Antibiotic.

b- Vitamins (K and C).

c- More hospitalization.

2- *Hypo-parathyroid cataract* :-

Due to Hypo-parathyroidism (with low serum calcium and tetany) as in thyroidectomy with accidents removal of parathyroid.

3- *Hypo-thyroid cataract* :- due to cretinism.

4- *Ankylostoma cataract* :- due to :-

- Worm toxins.

- Anemia.

19- Definition of senile cataract and what are its degree ?

Definition :- Bilateral degenerative lens opacity affecting old people (aging i.e above 50 years of age).

Incidence :-

1- Age :- above 50 years of Age.

2- Sex :- equal in both male and female.

3- Laterally :- Bilateral.

4- Heredity :- positive (+ve).

Aetiology :- degenerative aging process (unknown) - - - interference with lens nutrition and metabolism is due to :-

1- Endocrine disturbance.

2- Ultraviolet rays in these.

3- Stress and Straus of.....

Types of senile cataract :-

A- Senile cortical cataract :-

1- incipient stage :-

a- Sectorial cataract.

b- Posterior cortical cataract.

c- Peri-nuclear (punctate) cataract.

B- immature stage :-

1- Typical immature cataract.

2- intumacat cataract.

C- Mature stage :-

D- Hyper-mature stage :-

1- Typical hyper-mature cataract.

2- Bioin (Black) cataract.

20- What is the investigation that done for differentiation between retinoblastoma and cataract in children ?

1 -U/S

2- Coputurised tomography (CT).

21- What is the most type of cataract occur in children what done for it ?

Most common types :-

Congenital (developmental)cataract occurs at birth or during childhood.

What done for it :-

- Should be addressed as early as possible, preferably within the first three months of life.

22- Differentiation between retinoblastoma and cataract in children ?

A- Retinoblastoma :-

- Leukocorea.

- Yellow whit retinal mass.

- Pseudo-hyphyon and hyphyma.

- Closed angle glaucoma.

- Dilated fixed pupil.

B- Cataract :-

- Leukocoria.
- Squint.
- Nystagmus.
- Aniridia.
- Colobomas.

23- What happen if children with cataract stay until age of 2 years with doing surgical Treatment ?

Occurs compl..... :-

- 1- Amblyopia.
- 2- Squint.
- 3- Nystagmus.
- 4- Mental retardation.

24- What is the Treatment of cataract in children ?

A- Conservative treatment :-

If cataract not extensive

- 1- eye glasses :- if there is error of reflection.
- 2- Mydriatics :- in central lens opacity to dilatation of pupil to allow better image through clear lense due to :-
 - Use Atropine sulphate eye ointment 1%.
 - Cyclopentolate drops 0,5 -1 %.

If atropine irritation.

B- Surgical treatment ==> in extensive cataract two Types of operation.

- 1- Irrigation / Aspiration :-
- 2- mm limbal incision ---->> Anterior capsulotomy OR capsulectomy --->>
Irrigation and aspiration of lens matter by use double way cannula
OR
Irrigation Aspiration Machine.

Indication :- soft cataract up to 25 years .

Peroperation preparation and anesthesia as in cataract extraction .

Complication :-

- 1- After cataract.
- 2- Iridocyclitis.
- 3- Secondary glaucoma.

C- Lensectomy :-

The whole lens removal with Vitrectomy Machine

- Anterior Lensectomy via a limba incisions.
- Posterior Lensectomy via apars plicata incisions.

In infant may occur postoperative retinal detachment because the pars plana is not mature .

***Age of operation in early:-*

a - At one month of age.

The fixation reflex is developed between 2 and 4 month after birth .

b - After 3months of age :-

The operation before 3 months is risk due to :-

- 1- Interference with development of age
- 2- More liability to iridocyclitis and glaucoma (because the Anterior chamber is shallow with narrow angle)

In postoperative infantile aphakia corrected by :-

- 1- contact lenses.
- 2- Eye glasses.
- 3- Refractive surgery (epikeratophakia).
- 4- IOL.

25- Complication and Treatment of cataract ?

Complications :-

- 1- gradual painless diminished of vision.
- 2- Fixed back spots from muscae.
- 3- Coloured haloes.
- 4- Senile cataract.
- 5- Nuclear cataract of

Treatment :-

26- What is the most common complication of cataract ?

A- Congenital cataract :-

- 1- Unilateral cataract (squint and amblyopia).
- 2- Bilateral cataract (Nystagmus and defective of vision with mental retardation)

B- Acquired cataract :-

1- Senile cataract :-

a- Displacement of lens :-

- 1- Subluxation.
- 2- Post. dislocation.

b- Leakage of irritant lens proteins :-

- 1- phacotoxic Uveitis.
- 2- phacolytic glaucoma.
- 3- Endo-phthalmitis phaco-anaphylactic.

2- Traumatic cataract :-

- 1- iridocyclitis.
- 2- Secondary glaucoma.

27- Complication of cataract operation ?

A- Pre-operative (during anesthesia) complications :-

- 1- Retrobulbar hematoma.
- 2- Shock.

B- Operative complication :-

- 1- improper section.
- 2- Hemorrhage.
- 3- Vitreous loss.
- 4- Posterior dislocation of lens.
- 5- Lens capsule Rupture during ICCE.

C- Post-operative complications :-

Early Post-operative complications :-

- 1- delayed reformation of AC.
- 2- intra-ocular hemorrhage.
- 3- iridocyclitis.
- 4- iris prolapse.

5- ocular infection.

Late Post-operative complications :-

- 1- Secondary glaucoma.
- 2- draw up pupil.
- 3- Retinal detachment.
- 4- Cystoid Macular oedema.

28- Explain Complicated cataract ?

Definition :- lens opacity due to local eye disease or general disease.

Types :-

A- Local eye disease :-

- 1- Cornea :- severe ulcer (with or without perfo).
- 2- Uveal tract :-
 - old iridocyclitis.
 - Malignant melanoma.
- 3- Lens :- Displacement (buburation or dislocation).
- 4- IOP :- Glaucoma.
- 5- Retina :- as
 - Retinal detachment.
 - Retinal Pigmentation.

B- Due to general disease :-

- 1- Diabetic cataract.
- 2- Hypo-parathyroid cataract :
 - due to low para (low Ca and tetany).
- 3- Hypothyroid : due to cretinism.
- 4- Ankylostoma : due to anemia and worm toxins.

29- Types of error of refraction and Treatment ?

1- Hypermetropia :-

Treatment :-

A- in low degree no Treatment.

B- Eye glasses :-

- convex.

- spherical.

C- Contact lens :-

in high Hypermetropia.

D- Refractive surgery :-

in high Hypermetropia.

2- Myopia :-

Treatment :-

A- Eye glasses :-

Concave lens.

B- Contact lens.

C- Low vision :-

- Telescopic for distance.

- Magnifying lens for reading.

30- Surgical Treatment of cataract and Which one is the best ?

1- Phacoemulsification :-

(Also known as 'Phaco)

It is the most common technique used for cataract removal nowadays.

2- Extracapsular cataract surgery (ECCS).

3- Intracapsular cataract surgery (ICCS).

4- ECCE+PCIOL/ACIOL.

Which one is the best :-

The most common type of cataract procedure performed today is called phacoemulsification (or "phaco") cataract surgery with foldable intraocular lens(IOL) implantation.

31- Treatment of cataract ?

A- Congenital cataract :-

Treatment :

- 1- Lensectomy
- 2- irrigation/aspiration
- 3- Needling.

B- Acquired cataract :-

Senile cataract :-

- 1- Cautshing(oldest way)
- 2- ECCE
- 3- ICCE
- 4- Phaco emulsification
- 5- Lensectomy for displaced or hypermetropic lens.
- 6- irrigation/aspiration surgery for (soft lens).

C- Traumatic :-

1- subluxation :-

- 1- Glasses are given
- 2- Lens extraction is done only if complications occur (ICCE)

2- Dislocation :-

A- Anterior dislocation :-

- 1- Give Mitotics to keep lens anterior to chamber
- 2- Give diamox and prepare for a quick operation to remove the lens.

B- Posterior dislocation :-

- 1- if quiet give glasses.
- 2- if Complicated remove the lens.

32- Types of Retinal detachment ? And what are the causes of each one?

- 1- Rhegmatogenous Retinal detachment (Primary = idiopathic, simple).
- 2- Tractional Retinal detachment (Diabetic and traumatic).
- 3- Exudative (Serous) Retinal detachment.

33- Function of the endothelial Layer of Cornea ? And what well Occurs if this Layer distracted or lost ?

Function :- keeps Cornea in condition of relative dehydration and clear.

if this Layer distracted or lost lead to :- Corneal opacity.

34- Definition of hyphema and where is found ?

Definition :- is blood in the Anterior (front) chamber of the eye.

Commonly cause Trauma and surgery.

35- Definition of anisometropia ?

Definition :- it is marked differences in refraction of the 2 eye of more than 4 D (dimension).

Or

The condition in Which the two eyes have unequal Refractive power ($>4D$)

Aetiology :-

- 1- Congenital (common).
- 2- Acquired (unilateral aphakia).

Treatment :-

- 1- Contact lens.
- 2- Refractive surgery.

36- Causes of sudden loss of vision ?

- 1- Trauma.
- 2- CROA or Vein.
- 3- Acute closed angle glaucoma.
- 4- Retinal detachment.
- 5- Vitreous hemorrhage.
- 6- Optic neuritis.
- 7- Methanol poisoning.

37- Disc and cup ratio ?

Optic Disc :- Circular appearance of beginning of optic nerve.

Optic cup :- Circular opening in Center optic Disc.

Optic Disc and optic cup ratio :- $0.5-1.5 = 0.3$ mm.

- it's important for diagnosis and follow up of glaucoma.

38- Aqueous humor and it's circulation ?

Composition :-

- Amino acid
- Water (98%).
- Electrolyte.
- Ascorbic acid
- Glutathione.
- immunoglobulin.

Function :-

1- IOP.

2- Nutrition :-

- posterior Cornea.
- Lens.
- Anterior vitreous.

3- For Refractive index 1.33 Diopter.

Circulation :- Production from ciliary body.

- P. C --> via pupil --> A.C --> trabecular.
- Schlemman's canal --> aqueous vein --> Episcleral vein.

39- Hyper-metropia ?

It's condition of refraction which parallel rays come to focus in a point behind, the Retina with accommodation at rest.

Types :-

1- Axial Hypermetropia.

2- Refractive Hypermetropia.

3- Pathological.

Treatment :-

A- Mild degree :- - No Symptoms = No treatment.

B- High degree :-

1- Optical correction by :-

- Glasses (convex lens).
- Contact lens.

2- Surgical Treatment :-

- PRK and LASIK
- Phakic lol
- Epikerato-phakia.

40- Causes of ptosis ?

A- Neurogenic :-

- 1- Oculomotor CN palsy.
- 2- Horner syndrome.

B- Aponerodic :-

- 1- Senile.
- 2- Post-operative.
- 3-

C- Congenital ptosis.

D- Conjunctival scaring.

41- Horner's syndrome ??

(Muller's muscle) Sympathetic trunk damaged.

42- Symptoms and signs of horner's syndrome ?

- 1- Miosis.
- 2- Partial ptosis.
- 3- Pseudoenkphthalmos.
- 4-

43- Definition of squint ?

It's condition in Which Visual axis of two eyes not direction of same obsect
"devition of Visual axis".

44- Types of squint and diagnosis ?

1- *Apparent* = - false = pseudo squint.

- True squint.

A- Apparent (false) squint :-

- Apparent convergeng (Psudo-esotropia).
- Apparent divergent (Psedo-exotropia).
- Apparent vertical (Pseudo-hyper or hypotropia).

Diagnosis :-

- 1- Presence of cause.
- 2- Cover test.
- 3- Corneal light reflex.

B- True squint :-

- Latent squint (Hetro-phoria).

Diagnosis :-

- 1- Cover-uncover test.
- 2- Maddox Rod (for far).
- 3- Maddox wing (for hear).

2- *Paralytic squint :-*

Diagnosis :-

- 1- Neurological Examination CT and MRI.
- 2- Testing of ocular motility.
- 3- Diplopia chart.
- 4- Hess screen.

3- *Concomitant squint :-*

Diagnosis :-

- 1- Testing of ocular motility.
- 2- Measure V/A.
- 3- Cover test.
- 4- Measurment of the angle of squint.
- 5- Assessment binocular vision by Corneal light reflex-- perimeter.

45- Causes of red eyes ?

- 1- Conjunctivitis.
- 2- Keratitis.
- 3- Scleritis.
- 4- Anterior uveitis.
- 5- Acute glaucoma.
- 6- Blepharitis.
- 7- Exophthalmos/fusomnia.
- 8- Sub Conjunctival hemorrhage.
- 9- Foreign body in Cornea or Conjunctiva.
- 10- Trichiasis.

46- Causes of painful red eye ?

- 1- Acute congestive glaucoma (ACG).
- 2- Acute Anterior uveitis (AAU).
- 3- End/panophthalmitis.
- 4- Corneal ulcer (CU).
- 5- Acute membranous/ purulent conjunctivitis.
- 6- Acute scleritis.
- 7- injury.

47- Diabetic retinopathy stages ?

It's micro-angiopathy affecting the retinal arterioles, capillaries and venules
(Bilateral and asymmetrical).

Staging of Diabetic retinopathy :-

- 1- Simple background Diabetic retinopathy.
- 2- Pre-proliferative Diabetic retinopathy.
- 3- Proliferative Diabetic retinopathy.

48- Transparence structure of eye ?

- | | |
|------------------------------------|------------------|
| 1- Conjunctiva (semi-transparent). | |
| 2- Lens. | 5- Aqueous humor |
| 3- Cornea. | 6- Vitreous. |
| 4- Pupil. | 7- Retina. |

49- Why the lens is transparency ?

Due to it's structure :-

1- Lenticular capsule :-

a cellular envelop and homogenous.

2- Lenticular epithelium :-

Single Layer of cuboidal cell deep to the Anterior capsule.

* Suspensory ligament of zonule of zinn's ==>

transparent, straight and inextensible fiber.

(No posterior epithelium).

*also there is pump enter and exit of aqueous humor from lens without accumulate it.

50- Number of Retinal Layers and the name of the first and last Layer ?

The Retina has 10 Layers :-

1- Pigment epithelium (outer most layer).

2- Photo-receptors (Rodes and cones) [body] .

3- Outer limiting membrane.

4- Outer Nuclear Layer.

5- Outer plexi-form Layer.

6- inner Nuclear Layer.

7- inner plexi-form Layer.

8- Ganglion cell Layer

9- Nerve fiber Layer.

10- inner limiting membrane.

51- Definition and Uses of concave lens ?

Definition :- diverging (minus) power lens.

- Thicker at periphery.
- Looked at appear smaller.
- More in same direction.

Uses :-

- Treatment of Myopia.

52- Definition and Uses of convex lens ?

Definition :- (plus +) diverging lens.

Uses :- - hyper-metropia.

53- Compare between direct and indirect ophthalmoscope ?

A. Direct :-

- 15 times magnification.
- Mono-ocular.
- We don't see depth.
- Image = erect.
- Few vision field appear.

B. Indirect :-

- 3-5 times magnification.
- Bin-ocular = 2 eyes.
- See depth.
- Image = inverted.
- Wide vision field appear (Periphery).

54- Causes and complications of Lacrimations (unilateral) ?

Causes :-

- 1- Eye injury in one eye.
- 2- Foreign body in one eye.
- 3- Entropion.
- 4- Trachoma.
- 5- infections in Anterior segment of eye as conjunctivitis, Corneal ulcer and iritis.

Complications :-

- 1- Atopic dermatitis in skin due to tearing eye-lid.
- 2- Ectropion.
- 3- Epiphora.
- 4- Blepharitis.

55- Compare between Lacrimation and Epiphora ?

Lacrimation :- increase secretion of tears (watery).

Causes :-

- 1- Emotional.
- 2- Corneal ulcer, iritis.
- 3- Foreign body (F.B), Bright light.

Epiphora :- decrease draining of tears.

A- Upper lacrimal passage :-

- Ectropion.
- Trachoma.

B- Lower lacrimal passage :-

- Fracture lacrimal bone.
- Tumor (obstructive).

56- How to examine Visual field ? And What is name of instrument for Visual field ?

By :-

- 1- Confrontation test (Rough test).
- 2- Perimetry :- For periphery field of vision.
- 3- Campimetry (Scotometry) :- For examine central field of vision.

57- Munson's sign ?

(Signs of keratoconus) Bulging of lower lid when patient looks down V-shaped.

58- What is kerato-conus and its Treatment ?

Definition :- it's congenital weakness of the Cornea mostly affecting the Center.

Treatment :-

- 1- Glasses.
 - 2- Contact lens (hard) to correct irregular Astigmatism.
 - 3- Kerato-phakia or Corneal graft.
- (Note :- Laser is contraindication).

59- Etiology of subluxation and dislocation of lens ?

- 1- Trauma and surgery.
- 2- Marfan syndrome.
- 3- Marchesani syndrome.
- 4- Homo-cystinuria.

60- Definition of Visual axis and optic axis ?

Visual axis :- it's the line of connecting the Macula and object of regard passing through the nodal point.

Optic axis :- it's the line connecting the Cornea, lens and Retina.

61- What is the name of angle between Visual axis and Optic axis and in Which case become more (large) and in Which case become low (small) ?

Name of angle between Visual axis and Optic axis :-

Angle alpha "Kappa" (it's tilted 5.2° horizontally and 1° vertical).

Large (More) in Hypermetropia ==> apparent divergent squint (exo).

Small (Low) in high Myopia ==> apparent convergent squint (eso).

62- Trachoma, trachiasis, entropion, extropion ?

Trachoma :-

Chronic specific infective, inflammation of Conjunctiva and Cornea caused by atypical virus (chlamydia trachomatis).

WHO Classification of Trachoma :-

(FISTO)

TF = trachomatous follicular.

TI = trachomatous intense inflammation.

tS = trachomatous scarring.

tT = trachomatous trichiasis.

cO = Corneal opacity.

Trichíasis :-

Mis-direction of lashes - - rubbing against the Cornea and Conjunctiva causes (entropion).

Treatment :-

1- Surgery upper lid :-

Van millengens operation.

2- Surgery lower lid :-

Websters operation.

Entropion :- Inward rolling of eye lid margin.

Ectropion :- Outward rolling of eye lid margin.

63- How can trichiasis affect Cornea ?

Foreign body, sensation lacrimation.

64- What is the trichinosis and What is the most common causes of it ?

Definition :- mal-directed lashes, rubbing against the Cornea and conjunctiva.

Causes :-

A- Trichíasis alone :

1- Cicatricial :-

- Ulcerative blepharitis.

- injuries and Burns of the lid margin.

2- Congenital :-

- distichiasis (extra-posterior raw of eye
lashes at the orifices of meibomian).

B- Trichíasis-entropion :

All causes of entropion (common).

Entropion :-

Definition :- Rolling of the lid margin with eye lashes.

Etiology :-

1- Spastic entropion :-

- it Affects the lower lid usually (as the lower tarsus is small).
- is due to weak support of the lid in present of blepharo-spasm which is usually due to Corneal or Conjunctival irritation) as in :-
 - a- Enophthalmos (usually due to absorption of orbital fat).
 - b- Prolonged wearing of tight eye bandage.

2- Cicatrical entropion :- due to palpebral Conjunctival cicatrization as in :-

- Trachoma.
- injuries.
- Chemical Burns.

3- Mechanical entropion :- due to Lack of support to the eye lid.

- Empty socket (after Enucleation).
- Shrunken (atrophic) globe.

4- infantile entropion :- Fatty infants (it disappears after some time).

5- Congenital entropion :- Rare and with micro-phthalmos usually (small eye).

6- involutional (senile) entropion :- Affect the lower lid only.

65- Exophthalmos causes ?

Endocrine Exophthalmos :-

A- Thyrotoxic Exophthalmos

Definition :- active forward Axial protrusion of eyeball in thyrotoxicosis.

- 35 years.
- in women.
- bilateral.

B- Thyrotropic Exophthalmos :-

Definition :- Progressive active protrusion of eyeball with paralysis of extra-ocular muscles.

- above 45 years.
- More in men.

- Uncommon.
- also called :-
 - Malignant Exophthalmos.
 - Progressive Exophthalmos.
 - Exophthalmic ophthalmoplegia.

C- Proptosis :-

Definition :- abnormal protrusion of the eyeball.

- Exophthalmos :- active forward as in thyrotoxic.
- Proptosis :- passive protrusion in any direction with forward protrusion.
 - unilateral or bilateral.

66- What is the buphthalmos? And Treatment ?

Definition :- increase in IOP with damage of the optic nerve due to Congenital anomalies in the angle (Congenital glaucoma).

Treatment :- is operative.

67- By what the retinoblastoma is diagnosed ?

- 1- Raised IOP.
- 2- Lactic dehydrogenase level raised in aqueous humor.
- 3- Calcification occur in 75% of cases.
- 4- Ultrasonography, computerised tomography and MRI for confirm the diagnosis.

68- Deferent between ECCE and ICCE ?

○ ***Extracapsular cataract extraction (ECCE) :-***

Opening the Anterior capsule, nucleus delivering and Cortical up, leaving a part of Anterior capsule and the whole posterior capsule in the eye.

Or

involves the removal of the lens while the elastic lens capsule is left partially intact to allow implantation of an intraocular lens.

Advantags :-

The reverse of the Disadvantags of ICCE.

◉ ***Intracapsular cataract extraction (ICCE) :-***

Principle :-

Complete removal of the lens within its capsule.

Or

involves the removal of the lens and the surrounding lens capsule in one piece.

Disadvantags :-

- 1- Primary PC-IOL implantation is not possible.**
- 2- More liability for Vitreous loss and Retinal detachment.**
- 3- The Natural barrier between the Anterior and posterior.**

69- What well happened for Retina and vitreous after Trauma ?

A- Retinal trauma :-

- 1- Retinal edema.**
- 2- Retinal hemorrhage ==> intra-retinal or sub-hyloid.**
- 3- Retinal tear and dialysis or detachment.**

Retinal edema :-

Trauma with counter-coop to the posterior pole of the eye ==> vascular disturbance.

Clinical picture :-

1- Vision :-

- Rapid Failure of vision to hand movement.

2- Fundus :-

- Retina = milky white posterior Part.

- Macula = cherry red spot.

Treatment :- Rest.

B- Vitreous trauma :-

- 1- Vitreous hemorrhage.**
- 2- Vitreous Opacities.**
- 3- Vitreous herniation into AC ==> if Ruptured zonule
==> secondary glaucoma.**

70- What is the name of Retinal edema ?

"Macula edema" occur when fluid and protein deposits collect on or under Macula of the eye (yellow central area of eye).

71- What is the Treatment of the retinal opacity ?

1- Vitrectomy.

2- Laser by Vitreous Opacities.

72- Types and Treatment of Myopia ?

Types of Myopia :-

A- Axial Myopia :-

- Simple Myopia.
- Progressive Myopia.
- Congenital Myopia.

B- Refractive Myopia :-

-
- index Myopia.

Treatment of Myopia :-

A- Optical Treatment :-

- 1- Glasses :- concave spherical glasses.
- 2- Contact lens.

B- General Treatment :- (For Progressive Myopia)

- 1- Vitamin A, D and calcium.
- 2- Near work - - in good illumination.
- in good position - at suitable distance avoid much close work.
- 3- Tissue extract - - placental extract.

C- Refractive surgery :-

- 1- Excimer laser and LASIK.
- 2- Radial keratotomy.
- 3- intra-ocular lens (IOL)
- 4- Removal of lens.

73- Complication of Myopia ?

- 1- Squint.
- 2- Complicated cataract.
- 3- Vitreous degeneration.
- 4- Blue discoloration of Sclera.
- 5- Retinal change :-
 - Temporal crescent.
 - Tigroid fundus.
 - Choroid-Retinal degeneration.
 - Retinal detachment.
 - Post. Staphyloma.

74- Mechanism of Amblyopia ? (Lazy eye)

Definition :- Function loss of vision without organic cause.

Mechanism :-

- 1- Lack of adequate Visual stimulation during infancy - - -
causing Visual deprivation.
- 2- Is based on abnormal binocular interaction.

75- Definition of Myopia and Hypermetropia and there causes and Treatment ?

Definition :-

It is condition of refraction of the eye in which, with accommodation completely relaxed, paralld rays came to afocus in front of the retina.

Causes (aetiology) [anatomical typed] :-

1- Axial Myopia :-

Due to increase of the Anterior--Posterior axis of the eye, the Refractive power of cornea and lens is normal (this most common cause).

2- Refractive Myopia :-

The Refractive system become more powerful, types :-

A- curvature Myopia :-

Increase the curvature of the Cornea (e.g keratoconus) or lens (e.g subluxation)

B- Index Myopia :- increase in the Refractive index of the ocular media mainly lens.

- If the index of the nucleus become higher (e.g Senile Nuclear sclerosis/cataract)

- If the index of the cortex decreased (e.g uncontrolled diabetes).

3- Abnormal forward position of lens (e.g Anterior dislocation).

Treatment :-

A- Optical treatment :-

1- Glasses :- concave spherical glasses.

2- Contact lens.

B- General treatment :-

1- improve general health ==> Vitamins A and D and calcium.

2- Avoid occupation where close work is necessary.

3- Near work must be done in good illumination and good position and with intervals of rest.

C- Surgical treatment :-

1- Excimer Laser and LASIK.

2- Radial keratotomy (RK).

3- intraocular lens.

4- Removal of lens.

Hypermetropia (hyperopia) :-

Definition :- is the condition of refraction of the eye in which with accommodation completely relax, parallel rays come to focus behind the retina

Causes (aetiology) :-

1- Axial Hypermetropia :-

Due to small antero-posterior axis of the eye. (children born with small eye become emmetropic).

2- Refractive Hypermetropia :-

The Refractive power of the eye become weaker :-

A- Curvature Hypermetropia :- Due to flattening of the Cornea or lens.

B- index Hypermetropia : decrease or of R.I of the cortex increase (e.g in old)

3- Posterior dislocation of the lens.

4- Aphakia.

Treatment :-

By convex spherical glasses :-

- 1- In children :- If the error is large or convergent squint is presents full correction is given.**
- 2- In adult :- Under correction, started by the highest lens that He can tolerate, because he cannot relax the ciliary muscles at one time (spasm of ciliary muscles) ==> After 6 mo. New glasses is ordered with full correction.**
- 3- In old age :- Full correction.**

76- Symptoms of Retinal detachment ?

- 1- Photopsia.**
- 2- Muscae volitans.**
- 3- Visual field defect.**
- 4- Micro-macro-psia.**
- 5- Sudden painless loss of vision.**

N.B :- Photopsia and floaters - - - absent in :-

- 1- Tretinal Retinal detachment.**
- 2- Exudate Retinal detachment.**

77- Definition and causes of Retinal detachment ?

Definition :-

Separation of the neurosensory retina from the retinal pigment epithelium (RPE) as result of retinal tear or holes with accumulation of sub-retinal fluid.

Causes (Aetiology) :-

1- Rhegmatogenous retinal detachment (RRD) :-

Retinal breaks/tears, macular holes.

2- Exudative retinal detachment (ERD) :-

Intraocular tumours, CMV retinitis, laser photocoagulation, malignant hypertension, eclampsia, Coat's disease.

3- Tractional retinal detachment (TRD) :- Proliferative retinopathy.

78- What is the Symptoms and Signs of Retinal detachment (RD) ?

Symptoms :-

1- Primary detachment :-

Symptoms :- Retinal Symptoms with No pain.

Early :-

- 1- Photopsia (seeing flashes of light) due to Retinal tear.
- 2- Muscae volitantes due to minute hemorrhage from tear into Vitreous.

Late :-

- 1- Field defects.
- 2- Failure of vision.
- 3- Meta-morphopsia (object appear distorted)
 - Micropsia (object appear smaller).
 - Macropsia (object appear larger).

Signs :-

1- Greyish red reflex by (ophthalmoscopic mirror).

2- Fundus picture :-

- full dilation of pupil show :-

- 1- Area of detachment appear grey and wavy.
- 2- Retinal vessels over Area of RD appear Dark and wavy.

3- Tears are Bright red due to :-

A- Vascular choroid.

B- Contrast with grey Area of RD.

79- What is leukocoria and its D.D ?

White pupillary reflex.

Differential diagnosis :-

- 1- Retinoblastoma.
- 2- Congenital cataract.
- 3- Congenital Corneal opacity.
- 4- Toxoplasmosis.
- 5- Total Retinal detachment.
- 6- End/ panophthalmitis.
- 7- Cyclitic membrane.
- 8- Medulloepithelioma.

80- Cornea reflex, light reflex, accommodation ?

Cornea reflex (blink reflex) :-

is an involuntary blinking of the eye lid elicited by stimulation of the Cornea by Corneal touch.

Afferent :- Trigeminal nerve (5th CN).

Efferent :- Facial nerve (7th CN) - - supply the orbicularis -- lid closure (bilateral)

Light reflex (Photo-pupillary reflex) :-

Reflex to Controls the diameter of the pupil.

Afferent :- Optic nerve (2nd CN).

Efferent :- Oculomotor nerve (3rd CN).

Accommodation (near) reflex :-

Is reflex action of the eye, response to focusing on near object.

Or

It is the ability of the eye to change its dioptric power in order to see clearly objects at different distances.

Afferent :- Optic nerve (2nd CN).

Efferent :- Oculomotor (3rd CN) - supply 3 muscles :-

- Constriction pupillae.
- Medial patch.
- Ciliary muscles.

81- What is the mechanism of red reflex of light in eye ?

Red reflex :- Is reflex of light throw the normal ocular media and it is due to colour of the blood in choroid.

Mechanism :- (by ophthalmoscope)

- Light source is located behind the left side of patient.
- Light is reflected from perforated plane mirror held by examiner.
- at 1m distance from patients eye.
- The examiner looks throw small hole in plane mirror to see red reflex in pupil.

82- Red eye reflex ?

Is reflex of light throw the normal ocular media and it is due to colour of the blood in choroid.

- 50cm of distance between examiner and patient.

83- Most common causes of blindness ?

- 1- Cataract.
- 2- Refractive error (decrease V.A).
- 3- Corneal opacity.
- 4- Childhood blindness.
- 5- Glaucoma.
- 6- Diabetic retinopathy.
- 7- Trauma.

84- Systemic causes of blindness and mechanism of Endocrine disease in cause of blindness ?

A- Thyroid gland :-

Exophthalmus :-

- 1- Corneal dryness.
- 2- Kerato-conjunctivitis.
- 3- Compress optic nerve and ophthalmic artery Leading to blindness.

B- Hypo-parathyroidism :-

- 1- Plepharo-spasm.
- 2- Opacities of lens contract.
- 3- Cataract.

85- in trachoma, What is the mechanism that lead to blindness ?

- Entropion + repeated infection cause of infection blindness.
- Escalated and cause blindness Which is there result of Ulceration and Congestion scarring of cornea.

86- Astigmatism and it's Treatment ?

Definition :- Is condition of refraction when eye does not have same power of refraction in all meridian.

Types :-

1- Corneal Astigmatism (common) :-

- Regular Astigmatism.
- Irregular Astigmatism.

2- Lenticular Astigmatism (very rare).

Treatment :-

- 1- Simple Regular Astigmatism :- Give Cylindrical lens.
- 2- Compound and mixed Regular Astigmatism :- Give Sphero-cylindrical lens.
- 3- Irregular Astigmatism :- Give Contact lens (hard).
- 4- Kertoplasty :- Kerto-conus and Corneal opacity.
- 5- Surgical Treatment :- LASIK.

87- Kayser-Fleischer rings, what is pigment and what is name of disease ?

Pigment :- Greenish brown pigment due to copper deposition in Descemet's membrane in Cornea.

Name of Disease :- Wilson's disease.

88- Definition and etiology of aphakia ?

89- Occular disease with Myopia ?

90- Type of glucoma with myopia and Hypermetropia ?

91- D.D of rebiosis iritis ?

92- Symptome of centernal retinal vein occlusion ?

93- D.D of sudden pain loss of vision ?

94- Optic neuritis cause in adult and elderly ?

95- Type of error of refraction of aphakia ?

96- Treatment of Hypermetropia ?

97- Difference between hypopion and hyphema ?

98- Difference between cylindrical lens and spherical lens ?

99- Normal and abnormal content of anterior chamber ?

100- Use of fluorescein stain ?

101- Definition of heterochromia and congenital glaucoma ?

102- Difference between yag and argon Laser ?

103- Mydriatic use and contraindication ?

104- Contraindication of pilocarpin ?

105- Causes of corneal opacity ?

106- Where lead ophthalmologist doctor to occurs astigmatism ?

107- Why name dendritic ulcer by this name ?





